

Appl. No. 10/686,474
Reply to Office Action of December 16, 2005

Docket No. MOIS-014AUS

Amendments to the Claims:

This listing of the claims will replace all prior versions, and listings, of the claims in the application:

1. (Currently Amended) A power management circuit, comprising:
first and second switching elements coupled across first and second rails for energizing a load; and
a first power control circuit coupled to the first switching element, wherein the first power control circuit biases the first switching element to a non-conductive state for a portion of a half cycle of an AC signal for [[energizing the load]] electrically disconnecting the load from the first and second rails during which a peak voltage of the AC half cycle occurs when a voltage across the first and second rails is greater than a predetermined threshold.
2. (Original) The circuit according to claim 1, wherein a duration of the first switching element being in the non-conductive state is centered about the peak voltage of the AC half cycle.
3. (Original) The circuit according to claim 1, wherein the power control circuit includes a potentiometer coupled across the first and second rails for setting the predetermined threshold.
4. (Original) The circuit according to claim 3, further including a control switching element coupled to the potentiometer for biasing the first switching element to the non-conductive state when a voltage across the potentiometer is greater than a level corresponding to the predetermined threshold.
5. (Original) The circuit according to claim 4, further including a storage capacitor for biasing the first switching element to a conductive state.
6. (Original) The circuit according to claim 1, wherein the predetermined threshold is above an expected peak of the AC half cycle for providing overvoltage protection.

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7. (Original) The circuit according to claim 1, wherein the predetermined threshold is below an expected peak of the AC half cycle.
8. (Currently Amended) The circuit according to claim 1, further including a control switching element coupled to the first switching element and a sense resistor coupled between the first rail and the first switching element such that the control switching element biases the first switching element to the non-conductive state when a current level through the first switching element is greater than a predetermined current threshold.
9. (Original) The circuit according to claim 1, further including a bulk capacitor, wherein the bulk capacitor is charged to the predetermined voltage threshold.
10. (Original) The circuit according to claim 1, wherein the first switching element forms part of a Darlington pair.
11. (Original) The circuit according to claim 10, wherein the Darlington pair, the load and the second switching element are coupled end-to-end across the first and second rails.
12. (Original) The circuit according to claim 11, wherein the load is disposed between the first and second switching elements.
13. (Original) The circuit according to claim 10, further including a first diode coupled across the first switching element and a second diode coupled across the second switching element.
14. (Original) The circuit according to claim 1, further including referencing voltage levels to a single rail.

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15. (Currently Amended) The circuit according to claim 14, wherein the single rail corresponds to a ~~conventional black wire terminal and a second white wire terminal is~~ relatively inaccessible first wire terminal and a second wire terminal, which is referenced to ground, is relatively inaccessible.

16. (Original) The circuit according to claim 14, further including a high impedance resistor for coupling to the load to minimize ground fault current.

17. (Original) The circuit according to claim 1, further including referencing voltage levels to ground.

18. (Currently Amended) The circuit according to claim 17, further including ~~[[conventional white and black]]~~ first and second input terminals for receiving an AC input signal, wherein the ~~[[white]]~~ second terminal is adapted for coupling to the load.

19. (Currently Amended) The circuit according to claim 18, further including a high impedance resistor for coupling to ground, wherein a potential difference between ground and the ~~[[white]]~~ second terminal corresponds to current through the high impedance resistor.

20. (Original) A circuit having power management, comprising:

first and second switching elements coupled between first and second rails for energizing a load;

a first power control circuit for controlling a conductive state of the first switching element;

a second power control circuit for controlling a conductive state of the second switching element;

wherein the first power control circuit includes a control device coupled between the first and second rails and connected to a control switching element, such that the control device biases the control switching element to a conductive state, which biases the first switching element to a non-conductive state, when a voltage across the first and second rails is greater than a predetermined threshold defined by the control device.

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21. (Original) The circuit according to claim 20, wherein the first power control circuit includes a sense resistor coupled to the first switching element for biasing the control switching element to the conductive state then a current through the sense resistor is greater than a predetermined current threshold.

22. (Original) A circuit, comprising:

first and second input terminals for receiving an input AC signal;

first and second diodes coupled end-to-end across first and second rails such that the first input terminal is coupled to a point between the first and second diodes;

a switching circuit including at least one switching element coupled across the first and second rails via a sense resistor;

a clamp switching element having first, second, and third terminals, the first and second terminals being coupled across the first and second rails, the first terminal being coupled to the first switching circuit, and the third terminal being coupled to the sense resistor, wherein the sense resistor biases the clamp switching element to a conductive state, which biases the switching circuit to a non-conductive state, when a voltage across the first and second rails is greater than a predetermined threshold.

23. (Original) The circuit according to claim 22, further including a capacitor coupled across the sense resistor for maintaining the clamp switching element in the non-conductive state.

24. (Original) The circuit according to claim 22, further including third and fourth diodes coupled end to end across the first and second rails, wherein the load is coupled between the second terminal and a point between the third and fourth diodes.

25. (Currently Amended) A method of managing power in a circuit, comprising:

selecting a voltage threshold at which an AC signal will be clamped such that a switching element for energizing a load is biased to a non-conductive state during a time that the AC signal is above the voltage threshold such that the load is electrically disconnected from first and second rails when the AC signal is above the voltage threshold.

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26. (Original) The method according to claim 25, further including centering the time of non-conduction for the switching element symmetrically about a peak of the AC signal.

27. (Currently Amended) ~~The method according to claim 25,~~ A method of managing power in a circuit, comprising:

selecting a voltage threshold at which an AC signal will be clamped such that a switching element for energizing a load is biased to a non-conductive state during a time that the AC signal is above the voltage threshold;

centering the time of non-conduction for the switching element symmetrically about a peak of the AC signal; and

[[further including]] charging a storage capacitor to [[the]] a voltage corresponding to the threshold level.

28. (Original) The method according to claim 25, further including generating four current surges for each cycle of the AC signal.

29. (Original) The method according to claim 25, further including biasing the switching element to the non-conductive state when a current through the switching element is greater than a predetermined current threshold.

30. (Original) The method according to claim 25, further including selecting the threshold voltage using a potentiometer.

31. (Original) The method according to claim 25, further including setting the threshold voltage above an expected voltage peak of the AC signal to provide overvoltage protection.

32. (Original) The method according to claim 25, further including modifying the threshold voltage to provide dimming of a lamp.

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33. (Original) A method of managing power in a circuit, comprising:
- providing first and second switching elements across first and second rails for energizing a load;
 - coupling a first control circuit to the first switching element and a second control circuit to the second switching element;
 - coupling a potentiometer across the first and second rails; and
 - coupling a control switching element to the potentiometer such that the potentiometer biases the control switching element to a state that biases the first switching element to a non-conductive state when a voltage across the first and second rails is greater than a predetermined threshold selected by the potentiometer.
34. (Original) The method according to claim 32, further including coupling a sense resistor to the first switching element and to the control switching element such that the sense resistor biases the control switching element to the state that the biases the first switching element to the non-conductive state when a current through the sense resistor is greater than a predetermined current level to provide current surge protection.
35. (Original) The method according to claim 32, further including selecting the threshold voltage above an expected peak voltage of an AC signal for energizing the load to provide overvoltage protection.
36. (Original) The method according to claim 32, further including centering a time during which the first switching element is non-conductive about a peak of an AC signal for energizing the load.
37. (Original) The method according to claim 32, further including adjusting the voltage threshold to provide dimming of a lamp.